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It is not necessary to assume that the present explanation of the Vandau reflects the actual history of the development of the system, but we have an instance of the possibility of the development of the avunculate without any trace of maternal descent.

FRANZ BOAS

THE SKULL FROM BROKEN HILL IN RHODESIA

DISCOVERIES of fossil human remains are of rare occurrence. Since all the world is more or less directly interested in them, new discoveries of this kind should be made known promptly and the knowledge extended as widely as possible. In this respect British anthropologists have more than once set a good example by publishing preliminary reports. Such a report on the skull from Bone Cave at Broken Hill, northern Rhodesia, appeared in the *Illustrated London News* of November 19, 1921.

Broken Hill is 650 miles north of Bulawayo and some 4,000 miles south of southern Europe. At the base of Broken Hill, which has an elevation of about 60 feet, is the entrance to Bone Cave, appropriately named because of the hundreds of tons of animal bones found therein. In penetrating the hill to a considerable distance, the cave drops slowly at first, and then more rapidly, to a depth of 90 feet below the entrance level. The last 50 feet were filled to the top with loose debris containing animal bones. At the bottom of the mass, 90 feet below the entrance, the human bones were discovered.

The greater part of a skeleton was found; only the skull, however, was saved, the rest suffering the fate of the ordinary animal remains. Later, after the manager of the property had seen the skull, it was decided to search for additional human bones. This resulted in the discovery of a complete tibia, two ends of a femur, part of a pelvis, a collar bone, and portions of a shoulder blade and upper jaw. It is not known definitely whether any of these belong with the nearly complete cranium. It may, however, be assumed that all belong to the same race.

The cranium is complete except for the loss of a portion involving the right temporal bone and the right half of the occipital including a part of the margin of the foramen magnum. The most striking aspect of the cranium is the facial. Seen either from the front or the side, it approaches the gorrilloid type more nearly than does any other known human cranium. This is especially true of the brow ridges and is apparent even in minor details. When, however, it

comes to the dentition and its effect on the molding of the upper jaw, the resemblance ceases. The form of the nasal bridge, the aperture, and the anterior nasal spine is intermediate between the Neandertal type and that of the anthropoids. The relatively long distance between the anterior nasal spine and the median point on the alveolar margin serves to accentuate the prognathism.

As already indicated the dentition is human; the teeth, originally sixteen in number, are set in a horse-shoe shaped alveolar arch, which outlines a handsomely domed palate. The teeth are much worn and in such manner as to prove that the lower teeth met the upper edge to edge—a feature common to the dentition of early races. The teeth had suffered considerably from caries, but perhaps no more so than was the case with the skull from *La Chapelle-aux-Saints*. The third molars are smaller than the other molars, but this is likewise true of the *Weimar* lower jaw. Another distinctly human feature intimately associated with the relatively broad palate and the horse-shoe shaped form of the dental arch is the well-developed posterior nasal spine.

In proportion to the face, the brain case is relatively small—especially low and narrow at the front. The generous allowance of space for the implantation of the temporal and nuchal muscles is in keeping with the facial characters. Both connote a preponderance of physical over mental capacity. The foramen magnum is situated farther forward than in the skull from *La Chapelle-aux-Saints*, suggesting that the race from *Broken Hill* had succeeded in attaining the erect posture more completely than had Neandertal man.

The failure to recover the lower jaw is a misfortune. We know, however, that it must have been of enormous dimensions; for Dr. Smith Woodward finds that the largest known fossil human lower jaw, that of *Heidelberg*, is both too narrow and too short to fit the cranium from *Broken Hill*.

There is at least one lesson to be drawn from the discovery at *Broken Hill*; and that is the danger of being misled by individual variation in a series so woefully incomplete as is our present list of fossil human skulls. With due allowance for such variation, it would seem reasonable to assume that the man from *Broken Hill* is a variant of the Neandertal type.

GEORGE GRANT MACCURDY